Introduction

This document contains the Navajo Nation Environmental Protection Agency (NNEPA) staff's responses to written comments on the draft Navajo Nation Water Quality Standards. The comments have been grouped by topic and summarized in the following sections. For each group of comments, the names of the respondents, a summary of the issues raised in the comments, and the NNEPA staff discussion of and response to the comments are provided.

§ 103 Purpose (formerly Section 1.0: Purpose, Scope, and Authority)

Arizona Public Service (APS), Richard Grimes

Section 1.0 should be changed to read, "These standards apply to all waters of the Navajo Nation as defined in Section 2.0."

Staff response: Comment accepted, Section 1.0 has been changed to read consistent with the definition, additionally this section is now *Section 103 Purpose.*

§ 102 Authority

Arizona Public Service (APS), Richard Grimes

NNEPA authority to establish standards comes from Section 103 of the NNPDES Act.

Staff response: The authority to establish Water Quality Standards has been addressed in Section 102. The authority comes from the Navajo Nation Clean Water Act (NNCWA) and Sections 303 and 518 of the federal Clean Water Act (CWA).

§ 104 Definitions (formerly Section 2.0)

APS, Richard Grimes

The definition of "acute toxicity" should be changed to read: "acute toxicity - toxicity involving a stimulus severe enough to induce a rapid response. In aquatic testing, an effect observed in 96 hours or less is considered acute."

Staff response: NNEPA believes that the definition as rewritten under Section 104 Definitions, is sufficient to define the meaning of "acute toxicity."

PWCC, John Cochran

Why is a definition included for Best Management Practices? Aren't BMPs more applicable to NPDES concerns? Encouraging voluntary implementation seems appropriate for the NPDES program, not Water Quality.

Staff response: A definition for BMPs has been included because BMPs are a major component of nonpoint source pollution control and it is within this context that they are included in these water quality standards. Voluntary implementation of BMPs for nonpoint source pollution control is a viable alternative for the Water Quality Program because of the complexity and nature of the nonpoint source problem. The inclusion of BMPs is also consistent with a goal of the Clean Water Act (101(a)(7)) as a means to control nonpoint source pollution .

PWCC, John Cochran

What are "ceremonial and cultural uses" listed as examples under both Primary and Secondary Human Contact?

Staff response: Ceremonial and cultural uses relate to activities involving traditional Native American spiritual practices, which involve, among other things, primary (direct) contact with water.

PWCC, John Cochran

The requirement of no exceedances of chronic standards more than every three years seems extreme. What is the basis for this stringent requirement?

Staff response: Chronic standard as defined is an arithmetic mean of samples taken over a four-day period. This suggests that exposure of this type happens because of repeated or continuous discharge and resultant contact with a contaminant, as opposed to "acute" which could be a onetime release that is subsequently diluted. Based upon the need to protect public health and the environment of the Navajo Nation, NNEPA does not feel that this requirement is too stringent in "allowing it to happen" once every three years. We all hope, of course, that it never happens. This requirement is also consistent with Utah and New Mexico's water quality standards and federal guidelines.

PWCC, John Cochran

Note the description Livestock and Wildlife Watering in Section 5.0 does not match the definition listed in Section 2.0. Plants should not be included in the definition for Livestock and Wildlife Watering. Also, including use by non-domestic animals for habitation, growth, and/or propagation in the definition is redundant considering the definitions listed for Cold Water, Warm Water, and Warm Water Ephemeral Habitats.

Staff response: Section 104 (formerly 2.0) defines Livestock and Wildlife Watering, while Section 204 (formerly 5.0) is the Livestock and Wildlife Designated Use (the two definitions are now very similar). NNEPA agrees that plants should not be included under this use and has therefore removed them from this definition. As to the redundancy of the inclusion of non-domestic animals, NNEPA believes that including non-domestic animals differentiates between waters created for livestock usage and naturally occurring waters, which are used by both groups.

Navajo Abandoned Mine Land Reclamation Department (NAMLRD), Madeline Roanhorse

Navigable waters need to be clearly defined. The definition used by the Army Corps of Engineers applies to ephemeral streams that remain dry over 90 percent on an annual basis, yet permits are required. The definition should include flow rate determinations (cfs), depth of water channel that may remain above the local water table and other factors. These definitions are important when applied to headwaters. Most of these do not meet the requirements of navigable water but subject to (sic) the reviewer's interpretations.

Staff response: The phrase "navigable waters" has been deleted from the old

water quality standards and a new definition for "waters of the Navajo Nation" is now included in the new and revised water quality standards.

PWCC, John Cochran

Both total and total recoverable analytical methods can be used for determining trace element concentrations in unfiltered water samples. The definition of total should be revised to specify which method is intended. **Staff response: The definition of "total" has been changed to "total concentration" which is defined as "the concentration of a constituent in a water sample, which is analytically determined without filtration."**

APS, Richard Grimes

The definition of "waters of the Navajo Nation" should be changed to match that in the NPDES Act Section 105(a)(77), eliminating ambiguity.

Staff response: The definition for "waters of the Navajo Nation" is now consistent with the definition in the Navajo Nation Clean Water Act. This Act is an amendment to the NNPDES Act and includes both the NNPDES Program and the Water Quality Program.

NAMLRD, Madeline Roanhorse

The distinction between wetlands and riparian areas needs to be clarified. Riparian areas only occur immediately after heavy precipitation events and usually dry out within days due to the high evapotranspiration rates. Wetlands contain unique conditions that support specific flora and aquatic species and contain water for longer lengths of time.

Staff response: The Water Quality Program does not see a need for clarification on wetlands or riparian areas. In the current water quality standards the definition of wetlands is based upon the definition used by the Corps of Engineers and the USEPA, and identification is based upon hydrology, vegetation, and soils. Riparian, on the other hand, is defined in Webster's dictionary as "relating to or living or located on the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater." Riparian areas may include wetlands.

New Mexico Environment Department (NMED), Steven Pierce

The proposed definition for coldwater, warmwater, and ephemeral warmwater habitat include the words "cold water" and "warm water," while during the remainder of the proposed standards the words "coldwater" and "warmwater," without the spaces, are used.

Staff response: Suggestion taken. The terms have been changed to "warm water" and "cold water."

§ 201 Antidegradation Policy (formerly Section 3.0)

NAMLRD, Madeline Roanhorse
*PWCC, John Cochran*There may be cases where the quality of any water body exceeds levels necessary to support existing uses, and to accommodate important economic or social development, lowering of the water quality standards may be necessary, after full interagency coordination and public participation. However, in such cases, before allowing any degradation of the water quality standards, the following should be kept in mind: there may be more than a single designated or potential use of the water, and the applicable standards shall be the most stringent of those established for such classified water; 2) the waterbody may be connected to other downstream waterbodies which may require higher standards.

The requirement to achieve the highest regulatory requirements for all new and existing point sources in subsection (3) seems to contradict the preceding sentences.

Staff response: The antidegradation policy in the proposed water quality standards is identical to what is required by 40 CFR 131.12.

§ 202 Implementation Plan (formerly Sections 4.0 or 3.1)

PWCC, John Cochran

Developing and pursuing inspection and enforcement, under Section 4.0(a)(10), seems appropriate for the Navajo Nation's NPDES program, not Water Quality.

Staff response: Water Quality Standards are an integral component of the NPDES Program and it is within this context that this statement is included in the water quality standards. The Water Quality Program also believes that

pursuance of inspection and enforcement *is* appropriate for the Water Quality Program and *is* an important function of ensuring water quality standards are being met in the waters of the Navajo Nation.

APS, Richard Grimes

Section 4.0(a)(11) It is not appropriate or practical for the NNEPA/WQ Program to provide technical training for wastewater treatment facility operators due to the diversity and complexity of industrial wastewater treatment systems. Item should be removed or industrial wastewater treatment facility operators should be exempted.

Staff response: The WQ Program believes that addressing the need for technical training for wastewater treatment operators is an important component of successfully reaching the goals set forth in the Clean Water Act. This is especially true for operators of small systems who do not have the budgets of large industrial wastewater treatment facility operators. We do not believe that an exemption is needed in forwarding the intent of this item.

Division of Finance, Bobby White

In Section 4.0(a)(12), reference is made to "revolving funds." Be advised that revolving fund is a term that is unique to the Navajo Nation and is therefore not a generally accepted accounting term. It is suggested that this terminology not be used as it may soon be phased out. What type of program is designated as a "revolving funds program authorized by the Clean Water Act?

Staff response: The term "revolving fund" has been removed.

PWCC, John Cochran

In 4.0(a)16 What is a unique surface- or ground-water body"? Definitions for both should be included in Section 2.0.

Staff response: Unique waters are those waters which have been determined to be of exceptional ecological or recreational significance due to the nature of their flora, fauna, water quality, aesthetic value, or the wilderness characteristic. A definition for unique waters has been added to Section 104 (formerly 2.0).
Although ensuring ground-water withdrawals do not degrade springs or riparian habitat seems worthwhile, 4.0(a)(17) as written has no pertinence to water quality

standards. This should be revised to reflect bearing on stream water quality standards, or deleted.

Staff response: Comment accepted, item #17 has been deleted.

NAMLRD, Madeline Roanhorse

The Implementation Plan does not address how wetlands will be protected from possible introduction of pollutants.

Staff response: The narrative water quality standards found in Section 203 of the proposed Water Quality Standards addresses this item. Future development of Biological Standards will provide additional wetland protection.

Section 203 Narrative Surface Water Quality Standards (formerly Section 4.0)

APS, Richard Grimes
NAMLRD, Madeline Roanhorse

Each item in this section begins with "may", making determination of these items subjective or speculative. The word "may" should be removed from each definition. The narratives should be expanded to include more parameters and be more specific. These should also be comparable to and consistent with those of the neighboring states

Staff response: NNEPA agrees and "may" has been removed from each definition. Narratives are a supplement to numeric criteria, which are specific parameters that are comparable and consistent with those of neighboring states.

PWCC, John Cochran

Are the pollutants mentioned in subsection (3) specific to sediment only, or also include oxidized precipitates and possibly organic materials reduced by anaerobic conditions?

Staff response: Bottom deposits include, among others, sediment, precipitates, and organic materials.

How appropriate are biotoxicity tests mentioned in subsection (2) (now Section 203

subsection D) for the short-lived flash floods common to Navajo Nation ephemeral drainages such as Moenkopi and Dinnebito Washes? These floods can peak at tremendous rates (thousands of CFS) within minutes, and carry concentrations of suspended solids in excess of several hundred thousand milligrams per liter.

Staff response: Subsection D states that biotoxicity tests may be used to prescribe water quality limits for effluent, not water quality limits for short-lived flash floods.

PWCC, John Cochran

"Undesirable, non-indigenous species of plant or animal life" mentioned in subsection (4) should be described or defined in Section 2.0.

Staff response: The NNEPA believes that this phrase speaks for itself in that "Undesirable, non-indigenous" generally means those plant and animal species which are not indigenous to our region and due to their propensity to successfully propagate under man-induced conditions become "undesirable."
A definition is not necessary to further interpret the literal meaning.

APS, Richard Grimes

Section 4, Standard #7 should be changed to read, "Cause objectionable taste or odor in drinking water." Concern with taste should be limited to drinking water. Odors in non-drinking water are covered in standard #6. Objectionable coloration of water is addressed in standard #9. In addition, there are numerical standards for turbidity; therefore turbidity should not be separately included as a qualitative standard.

Staff response: In accordance with 40 CFR 131.11(b)(2), the narrative criteria applies to all designated uses at all flows, therefore, the standard should remain as written. Odors in #6 relate to those "*near* the waterbody," while that in #7 relate to those "*in* the waterbody."

Comment accepted on #9, NNEPA has deleted this item because #7 as written covers the color of a waterbody,

Narrative water quality standards are a supplement to the numeric criteria and serve to include all water bodies under our jurisdiction, including water bodies that may not currently have designated uses and so would not have numeric

standards, therefore, a narrative standard for turbidity is appropriate.

Section 204 Designated Uses (formerly Section 5.0)

Adopting or Removing Designated Uses and Subcategories

APS, Richard Grimes
Peabody Western Coal Company (PWCC), John Cochran

In order to provide NNEPA with the flexibility necessary to protect both the environment and economic development, APS suggests that language be added to the standards which allows the Director to adopt or remove designated uses and subcategories by rule when necessary, as in 40 CFR 131.10(g).

APS suggests that language be added which states that the Director may establish a variance to a water quality standard when that standard is not being achieved, but NNEPA believes that the standard can ultimately be achieved. This would be used in lieu of removing a designated use. We believe this is acceptable to USEPA if the appropriate conditions are met, and would give NNEPA added flexibility.

40 CFR 131.10 describes requirements and procedures specific to the Designation of Uses, including latitude for removing designated uses which are not existing uses, or establishing subcategories of a use if (1) attainment of the use is not feasible due to normally occurring pollutant concentrations, or (2) natural, ephemeral, intermittent conditions prevent the attainment of the use. PWCC requests the Navajo Nation modify the standards to add a section describing available procedures for either removing or establishing subcategories of designated uses.

Staff response: The Director has the authority under the NNCWA to revise the water quality standards (which include designated uses and subcategories) by rulemaking; in fact, the Director has an obligation to review the standards periodically and make revisions as appropriate under § 202 of the NNCWA. Also, the Director has the specific authority under § 201(b) of the NNCWA to establish and remove designated uses, pursuant to the federal Clean Water Act and the federal regulations implementing the Act.

Language allowing for creating a subcategory or removal of a Designated Use has been added to Section 204.B. Section 204.B provides for modifications to Designated Uses, including removal or establishing a use subcategory, if the

requirements of 40 CFR Section 131.10 are met.

A variance section has been adopted. Please refer to Section 208.

Use Attainability Analysis

APS, Richard Grimes
PWCC, John Cochran

Language should also be added that indicates that a "use attainability analysis" must be completed before a designated use is removed or a subcategory of a designated use which requires less stringent standards is adopted, as per 40 CFR 131.10(j).

PWCC suggests including a definition of Use Attainability Analysis, and language regarding when they should be conducted. 40 CFR 131.3(g) provides a definition of Use Attainability Analysis (UAA), which is a scientific assessment of the factors affecting the attainment of a designated use. Other sections reference use of UAA's in revising or removing designated uses which are not attainable for various reasons.

Staff response: As stated in the response above, language allowing for creating a subcategory or removal of a Designated Use has been added to Section 204.B. Section 204.B provides for modifications to Designated Uses, including removal or establishing a use subcategory, if the requirements of 40 CFR Section 131.10 are met. These requirements include those listed under 40 CFR Section 131.10(j). 40 CFR Section 131.10(j) requires a use attainability analysis as defined in 40 CFR Section 131.3(g) to be performed in certain circumstances.

Section 206 Numeric Surface Water Quality Standards (formerly Section 7.0)

NAMLRD, Madeline Roanhorse

The numeric water quality standards for various designated uses should be consistent with those of neighboring states, especially where waterbodies are common.

Staff response: Every effort has been made to insure that water quality standards and designated uses are consistent across boundaries with adjacent states and downstream users. In addition to the efforts of the Navajo Nation EPA, United States EPA will also review these standards for consistency with adjacent states that share common water bodies such as the San Juan, Colorado,

and Little Colorado Rivers.

Water Quality Should Be Tested Before Standards are Adopted

APS, Richard Grimes
Pittsburgh and Midway (P & M), Ronald Wise
NAMLRD, Madeline Roanhorse
PWCC, John Cochran

It is P&M's belief that NNEPA/WQ is proposing standards for stream segments and all tributaries to stream segments without prior or actual knowledge of the existing water quality in those streams and tributaries. Therefore the proposed standards may not, and probably do not, represent the actual existing stream or tributary water quality... The proposed water quality standards should not be based on EPA Guidelines unless actual stream data confirms that the existing water quality matches the EPA Guidelines.... Attempts to later modify the water quality standards to match existing quality conditions is often very difficult. The public perception is that modification of existing standards, even to more accurately represent the existing water quality of the watershed, results in false claims that water quality standards are being relaxed or reduced.

Staff response: The NNEPA's proposed water quality standards are based upon the Nation's sovereign intent to protect public health and welfare. In addition, the proposed standards are consistent with the federal Clean Water Act's goal to ensure that all waters of the Navajo Nation "provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." A Use Attainability Analysis or other demonstration of existing water quality is not required before designating uses or establishing water quality standards(40 CFR 131.10(k)).

In accordance with federal guidelines, the proposed standards are comparable to those of nearby states, or are consistent with the federal requirements, which are the minimum levels required to ensure compliance with the intent of the federal Clean Water Act. Future modifications to existing standards (if required) may occur during review periods as provided for by the Navajo Nation Clean Water Act and the federal Clean Water Act. These review periods will include public participation and comment as part of the review process.

APS suggests that a provision be added that states that when pollutants exceed a water

quality standard solely due to naturally occurring conditions, this will not be considered a violation of the water quality standard. See Arizona Water Quality Standards, Arizona Administrative Code Section R18-11-119.

Staff response: Much of the concern regarding pollutants exceeding water quality standards solely due to naturally occurring conditions has been directed toward the proposed metals standards. The latest research provided by the USEPA indicates that analysis for the dissolved metal fraction rather than the total metal fraction provides for the protection of livestock and wildlife. Please note that the majority of human health and aquatic habitat metals standards are for the dissolved fraction. Additionally, the Livestock and Wildlife designated use metals standards have been changed to the dissolved fraction with the exception of mercury and selenium. These changes should help to distinguish between naturally occurring metals concentrations and those resulting from human alterations.

Following implementation of the numeric standards and review of attainment of designated uses, NNEPA may consider drafting language that allows for exemptions from water quality standards solely due to naturally occuring conditions. Such an exemption would only be adopted in conjunction with detailed implementation guidelines.

Current water quality data should confirm that the Designated Use Classifications meet this requirement; otherwise, the waterbodies need to be reclassified.

Staff response: As previously stated a Use Attainability Analysis or other demonstration of existing water quality is not required before designating uses or establishing water quality standards(40 CFR 131.10(k)).

PWCC has collected a significant amount of water quality data on both Moenkopi and Dinnebito Washes since 1980, and would be willing to share this information with the Navajo Nation for expanding the existing water quality database.

Staff response: NNEPA appreciates the opportunity to obtain this information.

Clarification should be included [in Section 6.0] regarding which designated uses are applicable to reaches of streams that feature only ephemeral conditions, or those limited intermittent reaches within ephemeral streams.

Staff response: If intermittent reaches are contained within a given surface water of the Navajo Nation, then the designated uses for that water body apply to the intermittent reach as well as the remainder of the water body. Section 204(C) has been revised to state: "For the purposes of these designated uses, the water body includes the stream reach, watershed, all tributaries, and all intermittent reaches of the listed water body unless otherwise specified".

Additional Comments

APS, Richard Grimes

Section 6.0 Items 1 and 2, list Dead Man's Creek; we believe the correct name is Dead Man's Wash.

Staff response: Comment accepted, Dead Man's Creek in the Chaco Watershed, has been changed to Dead Man's Wash.

PWCC, John Cochran

Listing Irrigation (5A) as a designated use for Moenkopi Wash from the mouth to headwaters is not appropriate. Moenkopi Wash should be listed twice for use designation, with the first reach consisting of Moenkopi Wash from just above Blue Canyon to the headwaters without irrigation as a designated use, and the second reach consisting of Moenkopi Wash from the mouth to just above Blue Canyon with irrigation as a designated use. Above Blue Canyon, Moenkopi Wash flows only in response to precipitation events, and irrigation is not an existing or potential use in this upper reach.

Only the reach within and downstream of Blue Canyon exhibits sufficient flow amount and duration to support irrigation.

PWCC will request the Navajo Nation perform a Use Attainability Analysis as prescribed in 40 CFR 131.10(j) for the designated uses listed for both Moenkopi and Dinnebito Washes.

Staff response: The Navajo Nation Water Quality Standards provide for the protection of existing and future uses of surface waters of the Navajo Nation. Irrigation is a potential use of Moenkopi Wash surface water upgradient of Blue Canyon as evidenced by springs present in cretaceous formations in the

Moenkopi watershed, past irrigation use by residents in the area, and the potential to use stormwater for irrigation during certain times of the year. Therefore no change to the Agricultural Water Supply designated use will be made.

As previously mentioned a Use Attainability Analysis is not required before designating uses (40 CFR 131.10(k)).

PWCC, John Cochran

PWCC provided a comparative analysis of water quality data collected since November 1985 with the standards proposed for the designated uses assigned to Moenkopi and Dinnebito Washes. Their conclusion is that water use standards based on total or total recoverable analysis are inappropriate and unachievable in sediment-laden ephemeral streamflows.

Staff response: The majority of metals standards for Ephemeral Warmwater Habitat designated use are for dissolved analyses (see Table 207.5).

NMED, Steven Pierce

The State of New Mexico has not adopted any dissolved oxygen standards for domestic water supply or primary and secondary contact, nor have any of the pueblos in New Mexico. I am curious as to why these standards are being proposed for the Navajo Nation.

Staff response: Correction noted, A dissolved oxygen standard is not required for the protection of human health and has therefore been removed from Domestic Water Supply, Primary Human Contact, and Secondary Human Contact designated uses.

APS, Richard Grimes

General comment on Section 8.0: Since many organic compounds have multiple names, it would be helpful and would avoid potential confusion if the CAS numbers were added to the standards list.

Staff response: Chemical Abstracts Service (CAS) numbers have been added.

NMED, Steven Pierce

The New Mexico acute and chronic standards for cyanide, amenable to chlorination for aquatic life uses, are 22 and 5.2 ug/l, respectively. The standards for total cyanide for the Navajo Nation for the uses of coldwater, warmwater and ephemeral warmwater habitats are 22/41 and 5.2/9.7 ug/l. Apparently the second value in each set is to be applied to warmwater and ephemeral warmwater habitat. This is not specifically stated for inorganic constituents as it is for organic constituents.

Staff response: Tables have been completely restructured for better readability. Please see Table 207.2.

PWCC, John Cochran

In October 1993, Martha Prothro, USEPA Office of Water, issued a policy statement to Water Management and Environmental Services Division Directors at all USEPA Regions regarding interpretation and implementation of aquatic life metals criteria, specifically which analytical form of metals analysis should be used for establishing water quality standards. In the second paragraph of page 3, she states, "EPA recommends that State water quality standards be based on dissolved metal." PWCC requests the Navajo Nation provide justification for listing the total form of both mercury and selenium for standards listed in Section 7.2.

What analytical forms (dissolved, total or total recoverable) should be compared against to determine compliance with the standards proposed for the harness- or pH-dependent parameters?

Staff response: In the Table 207.5 all of the aquatic life metals criteria are for the dissolved form with the exception of mercury and selenium. The rationale for the total mercury and total selenium is to protect against the bioaccumulation of these compounds in wildlife. The federally approved standards of the states of Arizona and New Mexico both require total selenium analysis. The total mercury standard was adopted from the New Mexico standard. Please refer to the metals Table 207.5 for a listing of which analytical forms are used for the hardness and pH dependent parameters.

APS, Richard Grimes

The "Organic Constituents" table lists a standard for 1-3 Dichloropropane, Should this be 1-3 Dichcloropropene? The table also lists 1,1,2,2-Trichloroehtane. This should be 1,1,2,2-Trichloroethane.

Staff response: Comment accepted, changes have been made.

NAMLRD, Madeline Roanhorse

In various tables under Section 8, several blank entries are noticed in the numeric value columns. Numeric figures or narratives would be appropriate to clear any doubt.

Staff response: Blank entries have been replaced by the term "No Current Numeric Standard (NCNS)" . This indicates that, currently, no numeric standard is used for the chemical or physical parameter in question. Narrative criteria are located in the Narrative Surface Water Quality Standards section.

For the benefit of the reader, sources of the numeric data for water quality standards shown in the tables should be identified.

Staff response: Numeric surface water quality standards were adopted from surrounding state standards and federal criteria. Numeric standards are consistent with the goals of the Clean Water Act.

NAMLRD, Madeline Roanhorse

In the tables under Section 7.2, the numeric data in the two columns corresponding to any single parameter vary significantly. Are these based on research?

Staff response: Since no specific entries are described, the WQ staff presume that the acute and chronic standards are being referred to. Acute standards are based upon a single sample while chronic samples are based upon the arithmetic mean of samples taken over a four day period, hence the significant variation.

P&M, Ronald Wise
PWCC, John Cochran

Warm water Ephemeral Habitat (3C) should not include a turbidity standard since

most flow is during stormwater events. Adjoining states either do not have a turbidity standard or exempt natural causes.

Turbidity, as a narrative or numeric standard, should not be applicable to reaches of receiving waters, which flow only in response to precipitation events (storm runoff). Discharges of relatively clear effluent from functioning PWCC point sources may locally alter the natural, muddy color of runoff occurring in both Moenkopi and Dinnebito Washes, which excepting limited reaches in Moenkopi Wash, flow only in response to precipitation events. Could PWCC effluent discharges result in violations of narrative standards during storm runoff events?

Staff response: The turbidity standard has been revised to reflect the natural occurrence of high turbidity levels encountered during flood events in arid surface waters with low vegetative density. Please refer to Tables 206.1, 207.1, and the "Footnotes to the Numeric Surface Water Quality Standards".

PWCC, John Cochran

The turbidity standard for Secondary Human Contact (2B) will not be met in either Moenkopi or Dinnebito Washes due to naturally occurring high concentrations of suspended sediment. In addition, both sheep and cattle routinely inhabit the channel bottoms of both drainages, providing a constant and widespread source for fecal coliform. Due to pervasive use of the channel bottoms by livestock, it is questionable whether the fecal coliform standards for Secondary Human Contact will be met in either Moenkopi or Dinnebito Washes. The Navajo Nation should remove both turbidity and fecal coliform from Secondary Human Contact standards for those reaches that only exhibit ephemeral flow conditions.

Staff response: See above comment in regards to the turbidity standard. In regards to the fecal coliform standard, if cattle are routinely in the channel bottom then steps should be taken to limit cattle access to the channel bottom so the fecal coliform standard is not exceeded.

P&M, Ronald Wise

The Navajo Nation standards may not be obtainable by those operators discharging water under an NPDES permit if the water quality in the stream or tributary does not currently meet these standards. Efforts to achieve and then maintain USEPA Guidelines adopted as water quality standards would be expensive for P&M's

operations if these standards become applicable to the NPDES permit. P&M would have to treat the water quality to meet or exceed these standards although the existing stream or tributary conditions do not meet the standards.

Exclusions should be provided for those water standards where it can be demonstrated that the standard will be met, so that an operator doesn't have to continue to sample for any standard if can always meet. Example: P&M operates in compliance with 40 CFR 434.63 where the only pollutant properties for which testing is required are pH and settable solids. To require more standards than what is already required by USEPA or current NPDES permits is to put P&M and any other operator within the Navajo Nation at an economic disadvantage compared with surface coal mining operations off the reservation.

Many of the characteristics and constituent standards set forth in the ephemeral warm water habitat (3C) could not be met in the event of a precipitation event at the P&M McKinley Mine resulting in a discharge into the watershed. The cost for P&M to monitor all of these constituents standards and bring any discharge into compliance with there standards would be a difficult task and of no value to the overall watershed quality. When a precipitation event causes the Tse Bonita Wash to fill with water, any discharge from the McKinley Mine would be diluted to a point that the water quality of the discharge from the mine would be insignificant in comparison to the overall volume of water in the wash.

Staff response: The Navajo Nation Surface Water Quality Standards do provide flexibility for designated use modifications and wastewater mixing zones (although this approach may be difficult to establish in ephemeral conditions).

The monitoring requirements of the NPDES permit are provided for by the permit conditions including the length of time required to monitor for individual chemical, physical, or biological parameters.

Economic considerations are described in the Antidegradation Policy and are established in 40 CFR 131.12 and 40 CFR 131.13. Economic hardship must be substantial and widespread. Tests required to measure economic impact are available.

P&M, Ronald Wise
PWCC, John Cochran
NMED, Steven Pierce

The draft Navajo Nation Warm Water Ephemeral Habitat (3C) standard is the same as the Warm Water Habitat (3B) standard. We believe that this does not recognize the differences between these two aquatic environments. A comparison of the Navajo Nation 3C standards to the Arizona Aquatic and Wildlife Warm water standards shows that these are the same. We believe that it may be more appropriate to adopt the Arizona Aquatic and Wildlife Ephemeral Standard as the Navajo Nation 3C standard. These standards have been approved by EPA Region 9 and better reflect the conditions of an ephemeral stream environment.

The State of Arizona lists notably different values for select parameters under Ephemeral Aquatic and Wildlife Use compared with Coldwater and Warmwater Aquatic and Wildlife Uses. Specifically, arsenic has less stringent standards, and no standards are set for antimony, beryllium or chlorine (total residual). Additionally, less stringent standards are prescribed for Ephemeral Aquatic and Wildlife Use by the State of Arizona for those parameters which are hardness- or pH-dependent, including cadmium, copper, lead, nickel, pentachlorophenol, and zinc. The standards listed under Section 8, excepting cyanide and select organic constituents, are all based on federal criteria for Coldwater aquatic life and habitat water quality criteria, why hasn't the Navajo Nation adopted less stringent but more realistic standards for all parameters listed under Ephemeral Warmwater Habitat designated use?

Staff response: NNEPA has determined that the level of aquatic life protection provided for by the Warm Water Habitat designated use is also the same desired level of protection for the Ephemeral Warm Water Habitat designated use. The numeric standards for the Warm Water Habitat designated use were adopted from the federally approved standards of the states of Arizona, New Mexico, and Utah, and from federal guidelines.

The turbidity standard for Ephemeral Warm Water Habitat (3C) will not be met in either Moenkopi or Dinnebito Washes due to naturally occurring high concentrations of suspended sediment. In addition, the dissolved oxygen standard will be commonly exceeded in both washes during storm-generated runoff events. The Navajo Nation should delete both standards for Ephemeral Warm Water Habitat.

Staff response: The change to the turbidity standard has been addressed. The dissolved oxygen standard is the minimum level of dissolved oxygen required in the surface water body not the maximum level allowed.

The State of New Mexico does not currently have aquatic life standards for antimony and thallium and will probably not propose these during this triennial review.

The acute standard for dissolved beryllium contained in the New Mexico water quality standards for aquatic life uses is 130 ug/l, while that proposed for the Navajo Nation for the uses of coldwater, warmwater and ephemeral warmwater habitats is 65 ug/l.

The New Mexico acute and chronic standards for aquatic life uses for total residual chlorine are 19 and 11 ug/l, while those proposed for the Navajo Nation for the uses of coldwater, warmwater and ephemeral warmwater habitats are 11 and 5.0 ug/l.

The New Mexico aquatic life standard for selenium is for the total recoverable fraction, while the selenium standards proposed by the Navajo Nation are based on the total fraction. We applaud the proposed chronic selenium standard of 2 ug/l and believe that, based on current literature, this level represents the best level of protection.

Staff response: Navajo Nation standards for these analytes were adopted from the federally approved standards of the state of Arizona.

The proposed hardness-dependent standards for inorganic constituents are identical to those currently in effect for the State of New Mexico for aquatic life uses. We are currently evaluating the USEPA-recommended revisions to these formulae for converting total recoverable criteria to dissolved standards. The major differences will occur for the parameters lead and chromium. The proposed standards for hardness-dependent criteria for the Navajo Nation do not indicate whether these standards apply to the dissolved, total or total recoverable fraction of the sample and should probably do so.

Staff response: All numeric standard tables have been revised to be easier to read and provide more information. Please refer to the metals Table 207.5 for a listing of which analytical forms are used for the hardness and pH dependent parameters.

The State of New Mexico uses the same ammonia tables for coldwater and warmwater fisheries as those proposed for the Navajo Nation (Tables 8.6 and 8.7), except that the New Mexico total ammonia standards are each expressed in two significant figures. New Mexico also has chronic total ammonia tables for coldwater and warmwater fisheries. We have these tables available in an Excel spreadsheet format, if the Navajo

Nation is interested.

Staff response: Only the Acute ammonia standards for Cold Water, Warm Water, and Ephemeral Warm Water Habitat designated uses have been adopted at this time. It is the understanding of NNEPA that the USEPA is in the process of revising the ammonia tables. NNEPA is interested in obtaining from the USEPA their new ammonia standards and recommendations.

APS, Richard Grimes
PWCC, John Cochran
NMED, Steven Pierce

At the bottom of Table 8.8, additional standards are listed for wildlife watering. It is not clear when and how these standards will be applied.

Staff response: Please refer to the Footnotes to the Numeric Surface Water Quality Standards. In the event both wildlife and livestock are using the same body of water for ingestion, the more stringent value (lower chemical concentration) is the water quality standard. If it can be demonstrated that only livestock are using the water body for ingestion, then the less stringent value (higher chemical concentration) is the water quality standard.

Why are the numerical standards for Livestock and Wildlife Watering proposed for the total form of each constituent? The majority of surface water flow occurs from stormwater runoff in both Moenkopi and Dinnebito Washes. Stormwater runoff commonly features suspended solids concentrations in excess of 100,000 mg/l, comprised mostly of clays and fine silts. These finer particles sizes have immense surface areas which have a great affinity for adsorbing most of the constituents listed.

The acid digestion process involved using either the total or total recoverable method for laboratory analysis of unfiltered samples collected from stormwater runoff releases these bound constituents, resulting in high concentrations. Laboratory analyses for the same constituents using dissolved methods on filtered samples results in much lower concentrations. PWCC questions whether the total method yields numbers appropriate for evaluating the impact of constituent levels in stormwater runoff on either livestock or wildlife. The acid used in these laboratory digestions is 100 to 1000 times more concentrated than the stomach acids of livestock and wildlife.

In fact, most of the species under these two categories are ruminants with

multichambered stomachs. The portions of the stomachs where the food digestion occurs is almost neutral in pH. What are the potential health risks to either livestock or wildlife if they drink stormwater runoff featuring high concentrations of suspended solids with the constituents mostly bound up on the finer suspended solids particles? Additionally, most of the stormwater runoff events are of such large magnitudes and short durations to preclude either livestock or wildlife from directly drinking the water during such events. PWCC recommends the Navajo Nation use only the dissolved form of constituents listed for Livestock and Wildlife Watering if this designated use applies to ephemeral washes which flow only in response to stormwater runoff. The total form is more applicable only to intermittent reaches with baseflow within limited portions of ephemeral drainages that are not supported by stormwater runoff. The total and total recoverable forms of analyses were designed for clearwater streamflow, not the heavily sediment-laden streamflows.

The New Mexico water quality standards for the designated use of livestock watering are for the dissolved fraction, except for mercury which is for the total fraction. The proposed standards for the Navajo Nation for livestock and wildlife watering designated use are all for the dissolved fraction.

Staff response: Comment accepted. The latest research provided by the USEPA does indicate that analysis for the dissolved form of metals provides for the protection of livestock and wildlife. Therefore, the dissolved analysis will be required for Livestock and Wildlife metals with the exception of mercury and selenium for the reasons previously mentioned. Please refer to Table 207.5 for specific numeric standards

The New Mexico water quality standard for dissolved arsenic for the designated use of livestock and wildlife watering was 0.02 mg/l prior to 1995, which is identical to the standard proposed for the Navajo Nation for total arsenic. During the 1993-95 triennial review process, it was determined that this figure was based on a USEPA criterion that was actually 0.2 mg/l, which was adopted and is New Mexico's current standard for livestock watering. The State of New Mexico separated out the designated use of wildlife habitat during the same triennial review process.

The arsenic limit set for livestock and wildlife watering in Table 8.8 is 0.02 mg/l. This is a factor of 10 lower than the standard of 0.2 mg/l set by Arizona and New Mexico. Is this reduction intended, and if so, is it necessary to protect wildlife and livestock?

Staff response: Comment accepted. The arsenic standard has been changed from 0.02 mg/L to 0.2 mg/L.

APS, Richard Grimes
PWCC, John Cochran

What is the rationale for listing more stringent standards for both mercury and selenium under Wildlife Watering only? Why is such a low value proposed for mercury, considering the Human Health Criteria for this parameter listed in Section 8.4 is one order of magnitude higher? In addition, the standard for selenium in Domestic Water Supplies is 25 times the value proposed for Wildlife Watering. Does this imply protection of wildlife supersedes protection of human health? How practical is listing a standard at a level well below what most analytical laboratories can achieve as the minimum detection level (e.g., mercury at 0.012 ug/l)?

The selenium standard at the end of Table 8.8 is 2.0 ug/l. Due to high selenium in the soils in the San Juan Basin, this standard will not be consistently achievable.

Staff response: The more stringent standards for mercury and selenium under Wildlife Watering (now a subset of Livestock and Wildlife watering) are standards recommended by the United States Fish and Wildlife Service and have been adopted by the state of New Mexico.

Standards for Human Health Criteria and Aquatic Life Criteria are derived from two completely different approaches that account for the distinctions between the protection of human health and aquatic species.

USEPA Method 1631 can detect mercury concentrations of 0.012 ug/L.

The statement regarding the selenium standard being consistently unachievable is without support and draws no quantitative correlation between selenium concentrations in San Juan Basin soils and possible selenium concentrations present in surface water. NNEPA has no evidence that this standard cannot be achieved. NNEPA does appreciate the opportunity to obtain any data that provides information on selenium concentrations in San Juan Basin soils.

The State of Arizona lists a standard for arsenic of 200 ug/l and no standards for either vanadium or cobalt for Livestock and Wildlife Watering designated use?

Staff response: As mentioned, the arsenic standard has been changed to 200 ug/L. Numeric standards for cobalt and vanadium were adopted from the federally approved standards of the state of New Mexico.

NMED, Steven Pierce

The New Mexico numeric standard for dissolved molybdenum for the irrigation designated use is 1.0 mg/l while the proposed standard for the Navajo Nation is 0.01 mg/l.

Staff response: The Agricultural Water Supply standard of 0.01 mg/L was adopted from the Pueblos of New Mexico and the Hopi Tribe in order to protect for cultural uses associated with agricultural waters.

Human Health Criteria

APS, Richard Grimes

The application for the data in Section 8.4 and Table 8.9 is unclear. No reference could be found in the text.

Staff response: All text and corresponding numeric standard tables have been revised to be easier to read and provide more information. Please refer to the Additional Human Health Criteria Section and to the Human Health and Agricultural Numeric Surface Water Quality Standards tables (206.1 through 206.4) for clarification of use and application of human health criteria.

Sample Collection and Analysis

NMED, Steven Pierce

In Section 9.0, the proposed water quality standards require that all field and laboratory analyses used in determining compliance with the standards shall be in accordance with 40 CFR 136. The New Mexico water quality standards contain a corresponding statement. We are considering proposing a statement to the effect that "the New Mexico Environment Department may authorize the use of environmental data collected by methods currently under review by EPA for inclusion in 40 CFR 136." We believe that this statement could be very useful in proposing new water quality standards and conducting TMDL determinations based on the best available

data. Current USGS research and, increasingly, other water quality studies are being conducted using ultra-clean methods, which are under consideration for, but have not been formally adopted in 40 CFR 136. The USEPA promulgation procedures are lengthy and cumbersome, and the NMED would like the option of using the best available data for certain determinations. The Navajo Nation may wish to consider a similar statement.

Staff response: Comment accepted. Language has been added to the Sample Collection and Analysis Section that provides for analytical techniques approved by the USEPA and USGS that have not yet been adopted by rule.

Water Quantity

APS, Richard Grimes
PWCC, John Cochran
NMED, Steven Pierce

Section 4.0(a)(15) this item may conflict with other laws or rules that govern water use or return. This item should be deleted or qualified with the following language: "Nothing herein shall be construed to require the release of treated wastewater or require the release of water from dams."

Due to the nature of the arid climate of the Navajo Nation, APS suggests that NNEPA establish a critical low flow below which water quality standards do not apply. We believe this is acceptable to USEPA and is important in an area where water quality will fluctuate significantly as a result of water quantity. See State of New Mexico Standards for Interstate and Intrastate Streams Section 1105.B.

Requiring sufficient instream flows be maintained implies some measure of water quantity must be prescribed for each designated use listed in the proposed water quality standards. Has this been done? If not, does the Navajo Nation have a process proposed for making this determination? PWCC strongly feels the variable nature of instream flows in ephemeral drainages such as both Moenkopi and Dinnebito Washes with regard to seasonal variability and location, will complicate achieving the goal set forth in Section 4.0(a)(15). Additionally, PWCC is required by the Office of Surface Mining to use sedimentation ponds for treating disturbed land runoff, reducing the contributing area for maintaining flows. Ponds required by a federal agency may further complicate achievement of this goal.

The State of New Mexico uses a critical low flow based on the 4Q3 (lowest average four-day flow in a three year period). This value is used to calculate NPDES effluent permit limits. The proposed water quality standards for the Navajo Nation currently contain no critical low flow criterion. The Navajo Nation may wish to consider adoption of a low flow criterion.

Staff response: The Implementation Plan, Section 202, requires that sufficient instream flows be maintained to support designated uses and meet narrative and numeric water quality standards. At this time a determination of minimum flow requirements will be made on a case-by-case basis using standard surface water hydrology flow determination methods. NNEPA does not have sufficient data to establish a numeric low flow criteria for each surface water body within the Navajo Nation, but anticipates being able to in the future.

PWCC, John Cochran

PWCC has monitored effluents from USEPA permitted point sources since 1984, and would be willing to share this information with the Navajo Nation in evaluating the impact of effluents on receiving waters.

Staff response: NNEPA appreciates the opportunity to share this data.